

CLAIMS:

1. A woodworking machine comprising:

a support frame;

a motor supported by the frame;

a cutting tool supported by the frame and moveable by the motor;

a detection system adapted to detect contact between a person and the cutting tool;

a brake component adapted to engage and stop movement of the cutting tool,

where the brake component has a ready position spaced apart from the cutting tool; and

an actuator having stored energy sufficient to move the brake component from the ready position into engagement with the cutting tool within approximately 3 milliseconds or less after contact between a person and the cutting tool is detected.

2. The machine of claim 1, where the cutting tool has one or more teeth, and

where the brake component is adapted to engage the teeth of the cutting tool.

3. The machine of claim 1, where the actuator includes a spring adapted to

move the brake component into engagement with the cutting tool within approximately 3 milliseconds or less.

4. The machine of claim 3, further comprising a housing removably coupled to the frame, where the spring and the brake component are mounted within the housing.

5 5. The machine of claim 3, where the cutting tool has one or more teeth, and where the spring is adapted to move the brake component into engagement with the teeth of the cutting tool within approximately 3 milliseconds or less.

6. The machine of claim 1, where the spacing between the brake component and the cutting tool is at least 1/8-inch when the brake component is in the ready position.

7. The machine of claim 1, where the spacing between the brake component and the cutting tool is at least 1/4-inch when the brake component is in the ready position.

8. A woodworking machine comprising:

a support structure;

a motor supported by the support structure;

a blade supported by the support structure and moveable by the motor;

5 a detection system adapted to detect contact between a person and the blade;

a brake component adapted to engage and stop movement of the blade after such contact is detected by the detection system, where the brake component has a ready position spaced apart from the blade; and

an actuator adapted to move the brake from the ready position into contact with the blade at a high acceleration when the detection system detects contact between the person and the blade.

9. The machine of claim 8, where the actuator is adapted to move the brake at

15 an acceleration of over 500 ft/s^2 when the detection system detects contact between the person and the blade.

10. The machine of claim 8, where the actuator is adapted to move the brake at

20 an acceleration of over 2000 ft/s^2 when the detection system detects contact between the person and the blade.

11. The machine of claim 8, where the actuator includes one or more springs adapted to move the brake into contact with the blade.

5 12. The machine of claim 11, where the one or more springs are adapted to apply at least 50 lbs. of force to move the brake into contact with the blade.

13. A woodworking machine, comprising:

a support frame assembly;

a blade coupled to the support frame assembly and adapted to cut workpieces;

a motor coupled to the support frame assembly and adapted to drive the blade;

a detection system adapted to detect contact between a person and the blade; and

a reaction system coupled to the support frame assembly and adapted to stop movement of the blade upon detection of contact between a person and the blade by the detection system, where the reaction system includes:

a brake component having a first region pivotally coupled to the support frame assembly and a second region selectively movable into contact with the blade from a cocked position spaced-apart from the blade,

a spring configured to urge the second region of the brake component into contact with the blade from the cocked position, and

a restraining mechanism adapted to maintain the second region of the brake component in the cocked position against the urging of the spring until detection of contact between a person and the blade by the detection system.

14. The machine of claim 13, where the spring is compressed against the brake component when the second region is in the cocked position.

5 15. The machine of claim 14, where the spring is adapted to apply at least 50 lbs. of force against the brake component when the second region is in the cocked position.

10 16. The machine of claim 14, where the spring is adapted to apply at least 100 lbs. of force against the brake component when the second region is in the cocked position.

15 17. The machine of claim 13, where the spring is adapted to move the second region of the blade toward the blade at an acceleration of at least 500 ft/s^2 after the detection system detects contact between a person and the blade.

18. The machine of claim 13, where the spring is adapted to move the second region of the brake component into contact with the blade within 3 milliseconds or less after the detection system detects contact between a person and the blade.

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19. A woodworking machine, comprising:

a cutting tool adapted to cut workpieces;

means for driving the cutting tool;

means for detecting contact between a person and the cutting tool;

a brake component spaced apart from the cutting tool; and

means for moving the brake component into contact with the cutting tool within 3 milliseconds or less after contact between a person and the cutting tool is detected.

20. A woodworking machine, comprising:

a cutting tool adapted to cut workpieces;

means for driving the cutting tool;

means for detecting contact between a person and the cutting tool;

5 a brake component selectively movable into contact with the cutting tool from a

ready position spaced apart from the cutting tool; and

means for moving the brake component into contact with the cutting tool at an
acceleration of over 2,000 ft/s² after contact between a person and the cutting tool is
detected.